

This listing of claims replaces all previous versions or listings of claims previously presented.

Listing of Claims

1. (Currently Amended) A tunable laser assembly, said assembly comprising:
a laser that is a source of energy;
a highly reflective bottom mirror;
a convex mirror; and
a guided-mode grating resonant filter, said guided-mode grating resonant filter pivotably mounted between said laser and said mirror, wherein at least some of said energy from said laser impinges upon said guided-mode grating resonant filter, which is configured to direct at least some of said energy upon said convex mirror, which is configured to direct at least some of said energy back to said guided-mode grating resonant filter, which is configured to direct at least some of said energy back to said laser, which is configured to direct at least some of said energy through said highly reflective bottom mirror, wherein movement of said guided-mode grating resonant filter relative to said laser varies the wavelength of energy emitted from the laser.
2. (Original) The assembly of claim 1, wherein said laser is a side emitting laser.
3. (Original) The assembly of claim 1, wherein said laser is a vertical cavity surface emitting laser.
4. (Currently Amended) The assembly of claim 1, wherein said convex mirror comprises a highly reflective coating.
5. Cancelled
6. (Currently Amended) The A tunable laser assembly of claim 1, ~~said assembly~~ further comprising:
a ~~laser;~~
a detector; ~~and~~

~~a guided-mode grating resonant filter, said guided-mode grating resonant filter pivotably mounted adjacent said laser wherein movement of said guided-mode grating resonant filter relative to said laser varies the wavelength of the energy emitted from the laser, and wherein said detector is positioned to receive energy from said laser.~~

7. Cancelled
8. (Original) The assembly of claim 6, wherein said laser is a side emitting laser.
9. (Original) The assembly of claim 6, wherein said laser is a vertical cavity surface emitting laser.
10. (Original) The assembly of claim 6, wherein said detector measures absorption of energy.
11. (Original) The assembly of claim 6, wherein said detector measures transmission of energy.
12. (Original) The assembly of claim 6, wherein said detector comprises a flow sensor.
13. (Previously presented) The assembly of claim 6, wherein said guided-mode grating resonant filter is positioned above said laser and said assembly additionally comprises a cavity positioned beneath said laser, said detector being positioned within said cavity.
14. (Original) The assembly of claim 13, wherein said cavity is formed within a housing, said housing comprising a top portion and a bottom portion, said housing top portion being transparent to energy emitted by said laser.
15. (Previously presented) The assembly of claim 6, additionally comprising collimating optics positioned between said laser and said guided-mode grating resonant filter.

16.-24. Cancelled

25. (Currently Amended) A tunable laser assembly for detection of chemical fluids, said assembly comprising:

a laser comprising an emission surface;

a highly reflective bottom mirror;

a cavity comprising a top portion and a bottom portion, said cavity top portion being transparent to energy emitted from said laser;

a convex mirror

a detector positioned in said cavity to receive energy from said laser; and

a guided-mode grating resonant filter, pivotably mounted adjacent said laser, said guided-mode grating resonant filter cooperatively transmitting energy emitted from said laser to said detector, wherein changing the angle of said guided-mode grating resonant filter changes the wavelength of the energy incident upon the detector, and wherein at least some of said energy from said laser impinges upon said guided-mode grating resonant filter, which is configured to direct at least some of said energy upon said convex mirror, which is configured to direct at least some of said energy back to said guided-mode grating resonant filter, which is configured to direct at least some of said energy back to said laser, which is configured to direct at least some of said energy through said highly reflective bottom mirror.

26. (Currently Amended) The A tunable laser assembly according to claim 25,
wherein said laser is for detection of chemical fluids, said assembly comprising:

~~a vertical cavity surface emitting laser comprising an emission surface;~~

~~a cavity positioned adjacent said laser, said cavity comprising a top portion and a bottom portion, said top portion being transparent to energy emitted by said laser;~~

~~a detector positioned in said cavity to receive energy from said laser;~~

~~a highly reflective mirror positioned adjacent said laser; and~~

~~a guided mode grating resonant filter pivotably mounted above said laser, said guided mode grating resonant filter cooperatively functioning with said laser and said highly reflective mirror transmitting energy emitted from said laser to said detector, wherein changing the angle~~

~~of said guided-mode grating resonant filter changes the wavelength of the energy incident upon said detector.~~

27. (Currently Amended) The A tunable laser assembly according to claim 25, said assembly further comprising:

a laser;

a mirror;

a detector;

a wave guide; and

~~a guided-mode grating resonant filter pivotably mounted above said laser, said guided-mode grating resonant filter cooperatively functioning with said laser and said highly reflective mirror transmitting energy emitted from said laser to said detector, wherein changing the angle of said guided-mode grating resonant filter changes the wavelength of the energy incident upon said detector.~~

28. (Original) The assembly of claim 27, wherein said wave guide is an optical fiber.